



Arizona Department of Education
Research and Evaluation Section
1535 West Jefferson, Mail Bin 16, Phoenix, Arizona 85007
602-542-5151 • FAX 602-364-0887

Tom Horne
Superintendent of
Public Instruction

The Measure of Academic Progress (MAP) Questions and Answers

- 1. What is MAP?** The measure of academic progress (MAP) is a measure of school performance that tracks the growth of individual students from year to year.
- 2. Why is MAP included in AZ LEARNS?** MAP is included in AZ LEARNS to give schools credit for improving the academic performance of students even though those students may not attain proficiency. It also gives schools credit for improving the academic performance of students beyond proficiency.
- 3. How important is MAP in AZ LEARNS?** Historically, MAP represents 8 possible points out of a total of 27 in the AZ LEARNS formula. Technically, there is now no limit on how many points a school may earn from MAP, but the vast, vast majority of schools earn 8 or less.
- 4. How is MAP calculated for individual students?** MAP is calculated for individual students for each subject by subtracting the expected growth a student should make from one year to the next from the actual growth the student makes from one year to the next.

MAP for individual student (by subject) = actual growth – expected growth

Example. Student A scored 478 on the 6th grade math test in 2005. Her expected growth is 38. In 2006 she scores a 528 on the 7th grade math test. Her actual growth is $528 - 478 = 50$. Her MAP is $50 - 38 = 12$.

Example. Student B scored 490 on the 4th grade reading test in 2005. His expected growth is 12. In 2006 he scores a 500 on the 5th grade reading test. His actual growth is $500 - 490 = 10$. His MAP is $10 - 12 = -2$.

- 5. Why use expected growth? Why not just use actual growth?** The amount of growth a student may experience year to year varies widely depending upon the score earned by the student in the previous year. For example, the average student who

scored in the falls far below (FFB) performance level on the 6th grade math test grew by 39 points from 2005 to 2006. Meanwhile, the average student who scored in the exceeds performance level on the 6th grade math test grew by only 12 points from 2005 to 2006. This is due to a ceiling effect; students scoring at high levels simply have no where to grow.

If MAP was based solely on actual growth, high performing students would bring down a school's average MAP. Principals and teachers would mistakenly identify high performing students as holding the school back and in need of intervention.

- 6. How is expected growth determined?** Expected growth is determined by using the following equations:

Subject/ Last Year's Grade	Expected Growth
Reading/3 rd	Expected Growth = $102.9638 - (.1514 \times \text{ScalScor3}) + (3.7108 \times \text{FAY})$
Reading/4 th	Expected Growth = $153.1619 - (.174 \times \text{ScalScor4}) + (4.106 \times \text{FAY})$
Reading/5 th	Expected Growth = $105.8317 - (.1268 \times \text{ScalScor5}) + (4.343 \times \text{FAY})$
Reading/6 th	Expected Growth = $88.3119 - (.1896 \times \text{ScalScor6}) + (5.1193 \times \text{FAY})$
Reading/7 th	Expected Growth = $89.8856 - (.0823 \times \text{ScalScor7}) + (7.0786 \times \text{FAY})$
Math/3 rd	Expected Growth = $98.9308 - (.1514 \times \text{ScalScor3}) + (6.027 \times \text{FAY})$
Math/4 th	Expected Growth = $107.7715 - (.174 \times \text{ScalScor4}) + (5.7754 \times \text{FAY})$
Math/5 th	Expected Growth = $75.6373 - (.1268 \times \text{ScalScor5}) + (6.999 \times \text{FAY})$
Math/6 th	Expected Growth = $121.1295 - (.1896 \times \text{ScalScor6}) + (7.1203 \times \text{FAY})$
Math/7 th	Expected Growth = $54.1785 - (.0823 \times \text{ScalScor7}) + (7.0308 \times \text{FAY})$

ScalScor# equals the student's scale score on the AIMS test in grade #.

FAY = 1 if the student was enrolled in the school the full academic year; and FAY = 0 if the student was not enrolled the full academic year. A student is considered to be enrolled the full academic year if the student enrolled within the first two weeks of the school year and remained continuously enrolled up to the day of the test.

Example. Student A scored 478 on the 6th grade math test in 2005. She has been enrolled in her current school all year. Her expected growth for 7th grade in 2006 is $121.1295 + (-0.1896) \times 478 + 7.1203 = 37.62 = 38$.

Example. Student B scored 490 on the 4th grade reading test in 2005. He has not been enrolled in his current school for the full year. His expected growth for 5th grade in 2006 is $153.1619 + (-0.2879) \times 490 = 12.09 = 12$.

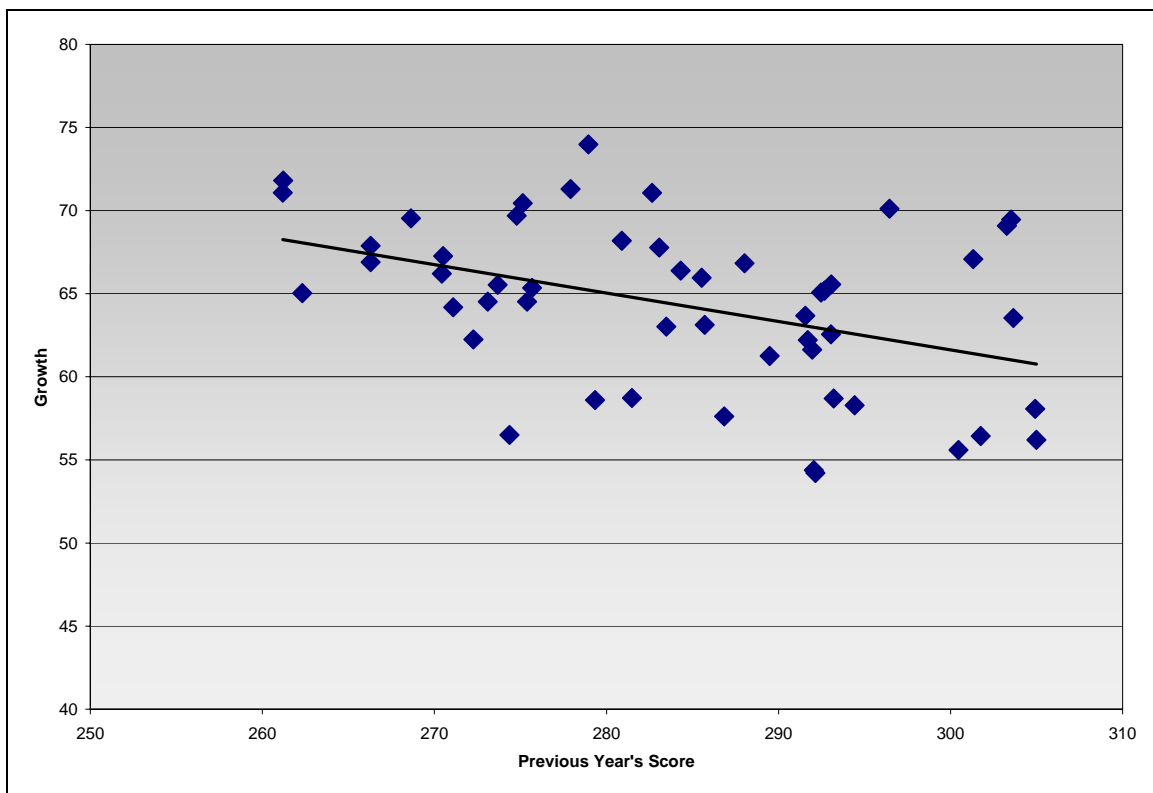
- 7. Where do the numbers used to calculate expected growth come from?** The numbers are estimates calculated using a statistical technique called regression

analysis. Regression analysis allows you to calculate an average for a subgroup of students within a larger group of students.

How it works can be seen from the chart below. The chart shows a typical subject/grade. On the horizontal axis are the scores from the year before. The vertical axis shows the growth from last year to this year. Each diamond represents one student: the score the student earned last year, and the growth achieved by that student.

Regression analysis draws a straight line through the data that attempts to minimize the distance between the line and all the data points. A line is drawn for each subject and grade. The numbers above are the slope and intercepts of each line. The value for **FAY** is a number that is added to the intercept for students enrolled the full academic year.

Each line represents the expected growth for that subject and grade. Diamonds above the line are students who achieved greater than expected growth. Diamonds below the line represent students who achieved less than expected growth.



8. **How is MAP calculated for a school?** MAP is calculated for a school by averaging the individual student MAP scores across all grades, subjects, and students.
9. **How are AZ LEARNS points awarded for MAP?** The number of AZ LEARNS points earned by a school from MAP can be calculated using the following equation:

$$\text{AZ LEARNS points} = 5.2 + .22 \times (\text{School's MAP})$$

Example. School A's MAP is -1.7. The number of AZ LEARNS points awarded to the school is $5.2 + .22 \times (-1.7) = 4.8$.

Example. School B's MAP is 3.2. The number of AZ LEARNS points awarded to the school is $5.2 + .22 \times (3.2) = 5.9$.

The minimum number of MAP points a school may earn is 2. There is no maximum.

Example. School C's MAP is -20.0. Since $5.2 + .22 \times (-20.0) = 0.8$ is less than 2. The number of AZ LEARNS points awarded to the school is 2.

- 10. Where does *that* equation come from?** The equation was selected in order to ensure as smooth a transition as possible to the new MAP. Last year schools in the 25th percentile for MAP earned 4 AZ LEARNS points, and schools in the 75th percentile earned 6 AZ LEARNS points. With the new MAP, schools in the 25th percentile have a MAP score of -5.0 and schools in the 75th percentile have a MAP score of 3.6. The equation ensures that schools in the 25th and 75th percentiles would earn the same number of AZ LEARNS points this year as last year.
- 11. My school earned 5 AZ LEARNS points from MAP. Is that good?** Five points is average. Schools earning between 4 and 6 AZ LEARNS points are in the middle 50 percent.
- 12. My school does not have any MAP points. Why is that?** A school will not receive MAP points if it does not serve grades 4-8, or if it has less than a valid number of students in the MAP analysis. MAP is not considered valid for groups of less than 16 students.
- 13. My school does not have any MAP points. Does this hurt my school's profile?** No. The AZ LEARNS profile for schools without MAP points is calculated using a different scale shown below.

Profile	Non-MAP Scale
Underperforming	<8
Performing	8-12.9
Performing Plus	13-19
Highly Performing	13-14.9
Excelling	15-19
